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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/065,337	10/04/2002	Lawrence Miller	36287.03201	2200
27171	7590	05/26/2004	EXAMINER	
MILBANK, TWEED, HADLEY & MCCLOY LLP 1 CHASE MANHATTAN PLAZA NEW YORK, NY 10005-1413			TRUONG, BAO Q	
			ART UNIT	PAPER NUMBER
			2187	7

DATE MAILED: 05/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/065,337

Applicant(s)

MILLER ET AL.

Examiner

Bao Q Truong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-6, 15, 18, 19, 30 and 31 is/are allowed.
- 6) ☒ Claim(s) 7-14, 16, 17, 20-29 and 32-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 October 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

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1. The examiner acknowledges the applicant's submission of Amendment for Application No. 10/065,337 dated on 15 March 2004. Claims 7-11, and 16 have been amended; claims 20-34 have been added. The application has a total of 34 claims pending. There are 24 independent claims and 10 dependent claims, all of which are ready for examination by the examiner.

***Claim Rejections - 35 USC § 101***

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 17, 20, 23, 26, 29, and 32 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claims 17, 20, 23, 26, 29, and 32 are directed to a computer executable software code transmitted as an information signal. Stated differently, claims 17, 20, 23, 26, 29 and 32 are directed to a signal per se not tangibly embodied. Accordingly, claims 17, 20, 23, 26, 29 and 32 are drawn toward non-statutory subject matter.

*Claim Rejections - 35 USC § 103*

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 7-9, 10, and 16, 21-22, 24-25, 27-28, and 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frank et al. (U.S. Patent No. 6,021,470) in view of Lomet (U.S. Patent No. 5,596,754).

Referring to claims 7, 21, and 22, Frank teaches a method for cache management in comprising:

identifying a cache miss of a cache item (see figure 3: step 302, and column 6: lines 37-53);

requesting the cache item from a master database as requesting data object from database in a mass storage (see figure 3: step 305, figure 4: element 421, and column 6: lines 37-53); and

receiving the cache item as sending data item to application program requesting for cache object (see figure 3: step 308, and column 6: lines 37-53).

Frank also teaches that when the data is being processed by one of the clients, it is locked to prevent other clients from gaining access to that data (see column 4: lines 63-66). However, Frank does not clearly teach steps of:

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requesting a read lock of a named cache, the named cache including the cache item;  
read locking the named cache; and  
releasing the read lock of the named cache.

Lomet teaches a method of locking used in cache management in a distributed computer system (see Abstract, column 3: lines 50-60, and column 10: Cache Management). Lomet teaches an interaction between locking and cache management, comprising steps of:

requesting a read lock of a named cache, the named cache including the cache item as a local lock manager receives a request for a read lock from a local principal (see figure 2: step 26, and column 14: lines 26-27);

read locking the named cache as the local lock manager posts the lock for local principal (see figure 2: step 34); and

releasing the read lock of the named cache as demoting the lock after cache management steps are finished (see column 15: Demoting Locks).

It would have been obvious to one having an ordinary level of skill in the art at the time the invention was made to include the above three steps of performing locking in the method taught by Frank. This would have been obvious because, when shared data is being processed by one of the clients, it should be locked to prevent other clients from gaining access to that data. Furthermore, Lomet also teaches that, in a distributed data sharing computer system, locking prevents conflicting accesses among processes/transactions, which compete for the same resource (see column 4: lines 59-67).

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Frank and Lomet teach the method of claim 7 in a computer environment. Inherently, it can be implemented as computer program code stored on a computer readable medium, loaded on a memory, and executed by a processor.

As to claim 8, a step of sending an indication that the named cache is read lock inherently exists when the local lock manager posts the lock for local principal.

As to claim 9, Frank further teaches a step of sending the cache item from the master database as sending data object, which is read from database in a mass storage (see figure 3: step 305 and 308, and figure 4).

Referring to claims 10 and 24-25, the claimed subject matter is the same as in claim 7.

The steps of:

(1) requesting a read lock of a global database, the global database including the cache item and

(2) read locking the global databases

have the same concept of locking used in cache management as in claim 7, wherein the global database is being processed by one of the clients and locking prevents conflicting accesses among clients, which compete for the same resource. Therefore, claim 10 is rejected on the same ground as claim 7.

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Frank and Lomet teach the method of claim 10 in a computer environment. Inherently, it can be implemented as computer program code stored on a computer readable medium, loaded on a memory, and executed by a processor.

Referring to claims 16 and 33-34, the claimed subject matter is the same as in claim 9.

The steps of:

(1) sending in indication that the named cached is read locked from the cache manager to the local node and

(2) receiving the indication that the named cache is read locked at the local node

inherently exist. Therefore, claim 16 is rejected on the same ground as claim 9.

Frank and Lomet teach the method of claim 16 in a computer environment. Inherently, it can be implemented as computer program code stored on a computer readable medium, loaded on a memory, and executed by a processor.

6. Claims 11-14 and 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bourne et al. (U.S. Patent No. 6,584,548 B1) in view of Lomet (U.S. Patent No. 5,596,754).

Referring to claims 11 and 27-27, Bourne teaches a method for cache management in a distributed data processing system (see figure 1), comprising:

determining that a predetermined event has occurred as an invalidation daemon wakes periodically to perform cache invalidation (see column 15: lines 1-3);

requesting a timestamp as the timestamp when the invalidation daemon wakes (see column 15: lines 3-5).

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receiving a timestamp as an inherently existing step;  
comparing the received timestamp with a previous timestamp as comparing timestamp with the latest timestamp when the record is previously processed (see column 15: lines 6-9); and  
responsive to the comparison, performing a predetermined action as sending notification to cache coordinator to invalidate any fragment that has expired (see column 2: lines 58-62, and column 15: lines 13-20).

However, Bourne does not clearly teach steps of:

requesting a read lock of a named cache;  
receiving an indication of a read lock of the named cache; and  
releasing the read lock of the named cache.

Lomet teaches a method of locking used in cache management (see Abstract, column 3: lines 50-60, and column 10: Cache Management). Lomet teaches an interaction between locking and cache management, comprising steps of:

requesting a read lock of a named cache as a local lock manager receives a request for a read lock from a local principal (see figure 2: step 26, and column 14: lines 26-27);  
receiving an indication of a read lock of the named cache as the local lock manager posts the lock for local principal (see figure 2: step 34); and  
releasing the read lock of the named cache as demoting the lock after cache management steps are finished (see column 15: Demoting Locks).

It would have been obvious to one having an ordinary level of skill in the art at the time the invention was made to include the above three steps of performing locking in the method taught by Bourne. This would have been obvious because, when shared data is being processed



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by one of the clients, it should be locked to prevent other clients from gaining access to that data.

Furthermore, Lomet also teaches that, in a distributed data sharing computer system, locking prevents conflicting accesses among processes/transactions, which compete for the same resource (see column 4: lines 59-67).

Frank and Lomet teach the method of claim 11 in a computer environment. Inherently, it can be implemented as computer program code stored on a computer readable medium, loaded on a memory, and executed by a processor.

As to claim 12, Bourne further teaches that the predetermined action comprises storing the received timestamp as the invalidation daemon remember the latest timestamp in the retrieved records (see column 15: lines 21-24).

As to claim 13 and 14, Bourne teaches that, upon determining a cache fragment has expired, the invalidation daemon notice cache coordinator to invalidate that cache fragment. Inherently, steps of requesting for an update of the cache and receiving an update for the cache will be carried out, then.

***Response to Arguments***

7. Applicant's arguments filed on have been fully considered but they are not persuasive.

Regarding to claim 17, the applicant argues on pages 23-24 that claim 17 is directed to statutory subject matter. The examiner disagrees since, as noted above, claim 17 is directed to a signal per se not tangibly embodied. The same reason is applied for the rejections of claims 20, 23, 26, 29, and 32.

Regarding to claims 7, 10, and 16, the applicant argues on page 25, first paragraph, that “Frank has a data refresh process that makes no use whatsoever of read/write locking”. The examiner disagrees and directs the applicant’s attention to figure 3, column 3: lines 21-23, and column 6: lines 37-53. First of all, Frank’s teaching is about performing caching **not about** refresh. Additional, Frank also suggests locking of data, when being processed by one of the clients, to prevent other clients from gaining access (see column 4: lines 63-66). The teaching of locking during reading is from Lomet (see ***Claim Rejections - 35 USC § 103*** above).

The applicant argues on page 25, second paragraph, that “Lomet does not disclose or teach use of a lock external to a database system to ensure cache updates in a distributed system **where the lock is held in one software process but used to guard resources in another**”. The examiner disagrees and directs the applicant’s attention to the languages of claims 7, 10, and 16. **Nowhere** from the languages of claims 7, 10, and 16, the examiner can find support for the applicant’s argument. The languages of claims 7, 10, and 16 describe a process of reading a cache item from a master database upon detection of a cache miss; the cache that contains the cache item is locked during the update process.

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Next, the applicant argues on page 25, second paragraph, that Lomet does not teach a method for cache item synchronization. The applicant seems to misunderstand the examiner's position. In the rejections of claims 7, 10, and 16, Frank teaches cache item synchronization, i.e. updating of a cache item upon detection of a cache miss (see figure 3 of Frank); Lomet, on the other hand, teaches lock management in a distributed data sharing computer system (see Abstract and figure 2 of Lomet).

Finally, the applicant argues on page 25, third paragraph, that claims 7, 10, and 16 recites locking schemes within a distributed computer system. The applicant argues that this locking scheme is different than the scheme of either Frank or Lomet. The examiner disagrees and directs the applicant's attention to Abstract and figure 2 of Lomet where Lomet teaches lock management in a distributed data sharing computer system.

Regarding to claim 11, the applicant argues on page 26, second paragraph, that Bourne does not teach "determining that a predetermined event has occurred **for an update**". The examiner disagrees and directs the applicant's attention to the language of claim 11 and column 15: lines 1-3 of Bourne. First of all, **nowhere** from the language of claim 11, the examiner can find support for the applicant's argument that an update will occur. Furthermore, Bourne **does** teach "determining that a predetermined event has occurred for an update" as determining that an invalidation daemon has periodically waken up (see column 15: lines 1-3) to invalidate and update cache fragment that has expired (see column 2: lines 58-62 and column 15: lines 13-20).

Finally, the applicant further argues on page 25, second paragraph, that claim 11 achieves concurrent (rather than exclusive) refreshing (rather than invalidation). The examiner disagrees

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and directs the applicant's attention to the language of claim 11. **Nowhere** from the language of claim 11, the examiner can find support for the applicant's argument.

***Allowable Subject Matter***

8. Claims 1-6, 15, 18, 19, and 30-31 are allowed.

9. Claims 17 and 29 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 101 set forth in this Office action.

***Conclusion***

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

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10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bao Q Truong whose telephone number is (703) 308-7090. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald A Sparks, can be reached on (703) 308-1756. The fax phone number for the organization where this application or proceeding is assigned is (703) 746-7239.

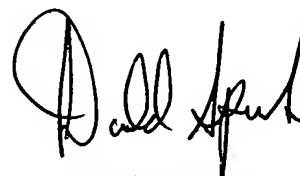
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

*Bao Q Truong*

BT

Patent Examiner

24 May 2004



Donald Sparks

Supervisory Patent Examiner

Technology Center 2100